Haier SERVICE MANUAL

Order No.

Front Load Washing Machine

MODEL: PFL510W-U

WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death

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Haier Group

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Chapter 1. General Information

1-1. General Guidelines

When servicing,observe the original dress.If a short circuit is found,replace all parts which are overheated or damaged by the short circuit.After servicing,see to it that all the protective devices such as insulation barriers,insulation papers shields are properly installed.Confirm that the screws,parts and wiring which were removed in order to service are put in the original positions,or whether there are the portions which are deteriorated around the service places serviced or not.And be sure safety of that.

1-2. Function indication symbols

(You will see them in the program introduction table)

☑ Signify the program has this course.

☑ Signify the program doesn't have this course.

Chapter 2 Product Feature

2-1. Features

Extra rinse function:Increase the times of rinse by choosing the function button(at most three times)

Quick wash function:For washing slightly dirty clothes to save water power and time

Intense wash function:For washing relatively dirty clothes to ensure the washing efficiency

Foam self-detect :Automatically add rinse times until the laundry is cleaned when detecting too much foam

Eccentric protection :When spinning,if the clothes are not evenly distributed,the washer will fluff out and redistribute the clothes and continue spinning after the clothes distribution becomes even.If the clothes distribution does not become even within the specified time,the washer will not spin to avoid abnormal vibration.In this case,please check the clothes for intertwist and rearrange them,then select ”Spin” program to spin the clothes.When there are few clothes, the washer may not spin due to eccentric protection.In this case,you can put more clothes into the washer and make them evenly distributed,then continue spinning.In addition, it is normal that the program time will prolong because the washer rearranges and fluffs out the clothes.

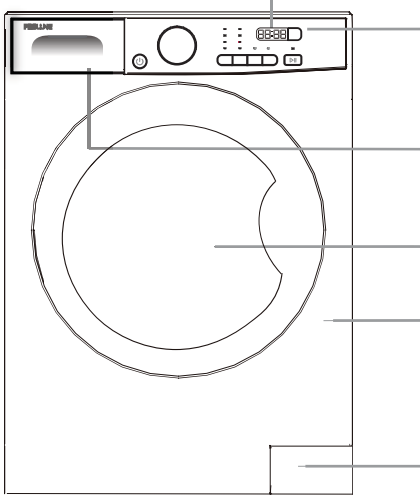
Power-down memory :The washer can memorize the program running state in case of power failture or loose plug during washing and continue the formerly selected program after the power supply resumes.

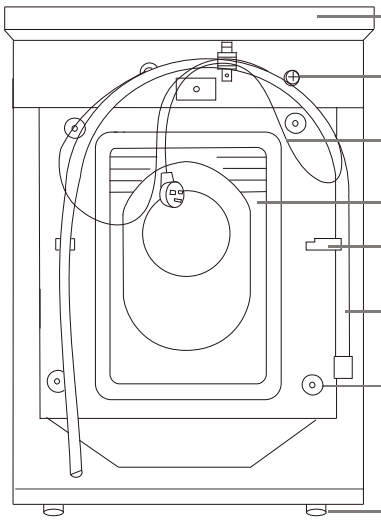
2-2. Specification

ITEM / MODEL	PFL510W-U
Power supply	220-240V~/50Hz
Max working current(A)	10
Water pressure(MPa)	0.03≤ p ≤ 1
Washing power(W)	200
Spinning power(W)	500
Rated load(kg)	5
Spinning speed(R/Min)	1000
Wasing programs	11
Power(Heating)	1650
Dimension(H X D X Wmm)	840 X 450 X 595
Weight(kg)	62
Noise(Washing)	54.1
Noise(Spinning)	73.8
Anti-electric shock	1

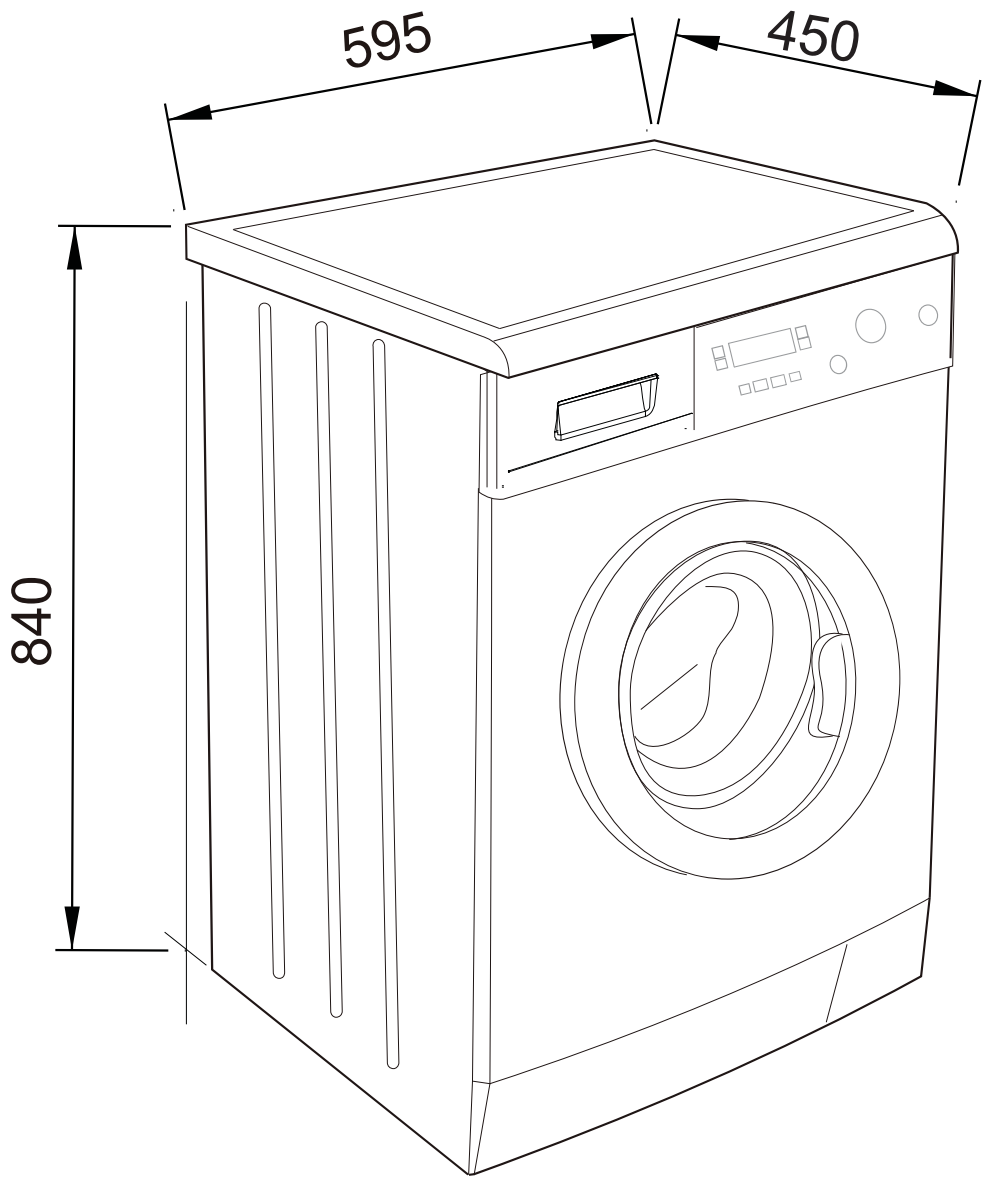
Chapter 3 Appearance brief introduction

3-1. Name of parts





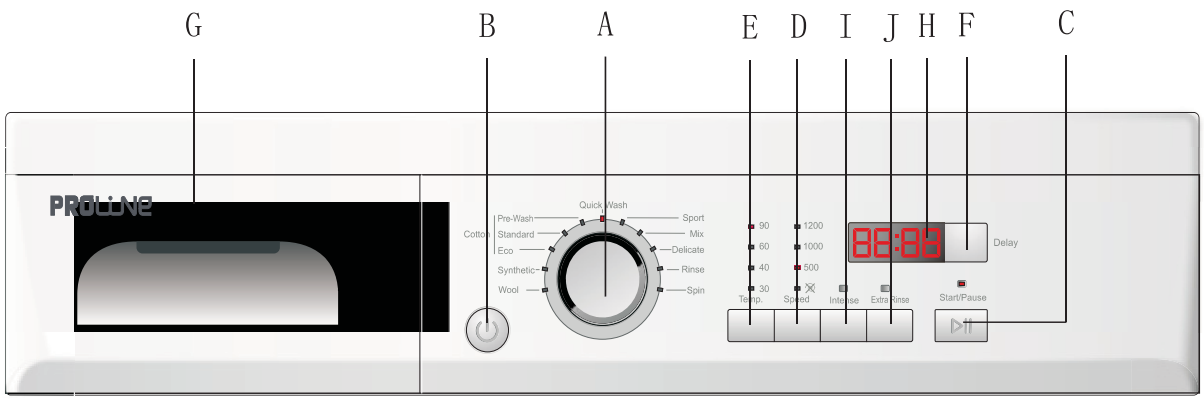
3-2. Dimension



DIMENSION(PACKING)(H X W X D):920 x 682 x 557

UNITS:mm

Chapter 4 Operational Guidance



A Program knob

By turning the knob clockwise/counterclockwise, the required program can be selected. There are 11 programs available. After a program is selected, the corresponding light will go on.

B Power Switch

Press this button to switch on the washing machine. Press it again to switch it off. Press this button gently for 2 seconds to switch off the machine as buttons are soft touch sensitive.

C Start/Pause Button

When the washing machine is connected to the power socket and a program is selected, lightly touch this button to start operation. During a wash cycle, touch it lightly ,operation will stop and the digits on the screen start blinking. Touch it again to resume operation.

D Spinning Speed Setting Button

Touch this button lightly to select the desired speed. When a speed is set, the corresponding indicator light will be illuminated.

Note: Different water temperatures and spinning speeds can be set for different laundries. Wash using the default settings if there is no special requirement.

E Washing temperature button

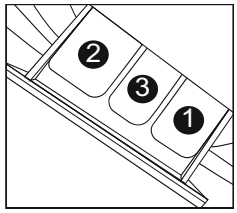
Touch this button lightly to select the desired washing temperature.When a washing temperature is set, the corresponding indicator light will be illuminated.

Select a temperature according to the type of laundry.

F Delay Button

Touch this button lightly, the washing machine will start operation after a period of time and the corresponding indicator will go on. The range is 0.5-24 hours; each touch of this button increases a half hour. After the button is set, press the Start/Pause button to start countdown of the set time (the time is displayed on the screen until the program ends).
Note:The delay time must be longer than the program time;otherwise,the washing machine will start the wash program directly.

G Detergent distribution drawer



Open the drawer, three compartments can be seen:
Compartment 1: Prewash detergent
Compartment 2: Detergent for programs 1 to 9.
Compartment 3: Softener, conditioning agent, perfume, etc.

H Display

nformation as remaining wash time and error messages will be shown here.
Note: After power is switched on, the display will go on and the remaining wash time decreases. As the water pressure and temperature may differ, the remaining time maybe adjusted accordingly. When the laundry is not balanced during spinning, the time may be automatically prolonged. These are normal phenomena.

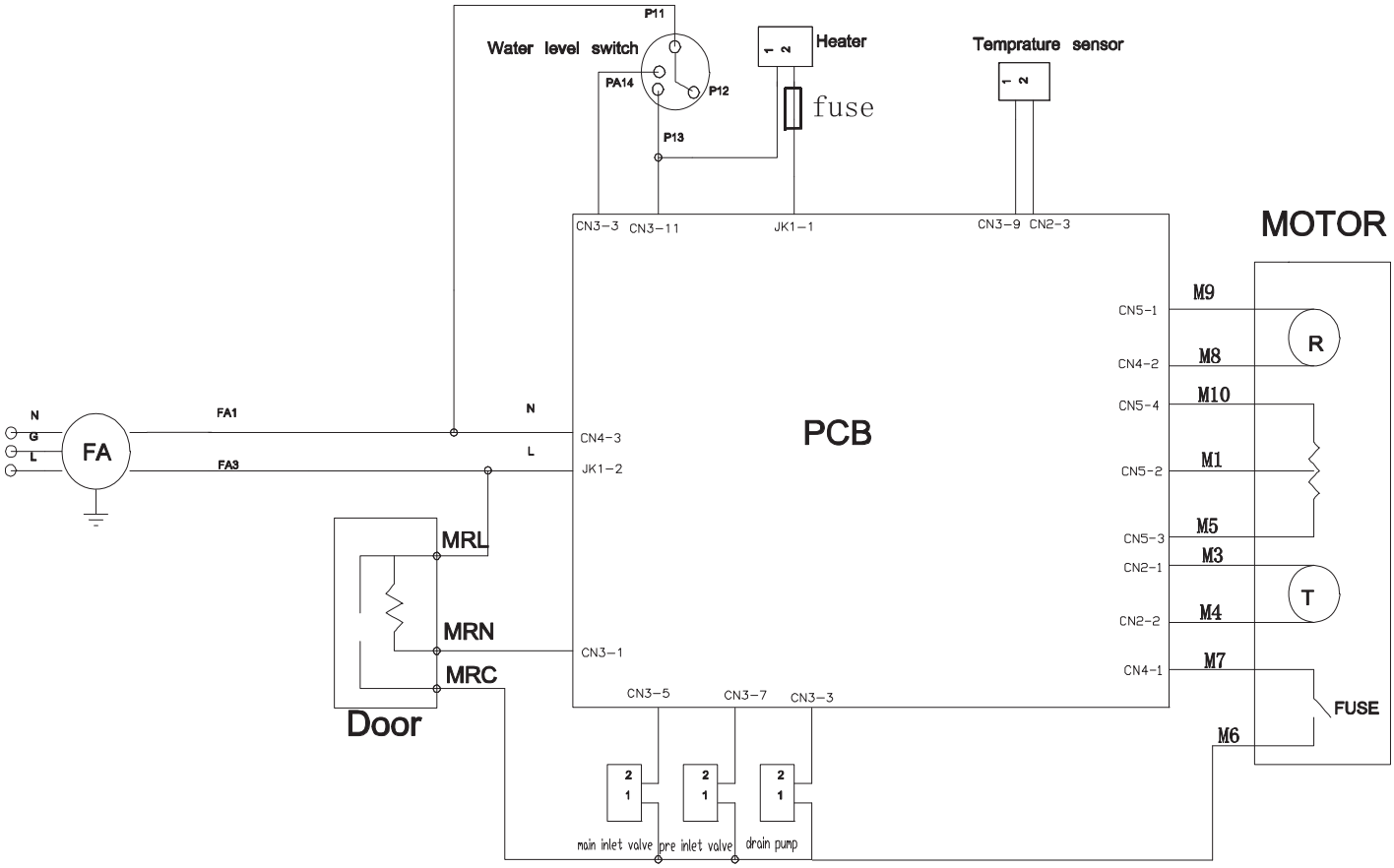
I Intense button

If the laundry is heavily soiled, press this button before starting the program. When the button is pressed, the washing time increases.

J Extra rinse button

Press this button, the washing machine will perform additional rinses. Press the button once to select one additional rinse. The display will show"P- -1". Press the button repeatedly and the screen will display "P- -2"or "P- -3", indicating two or three additional selected rinses. The "extra rinse light" is activated and flashes during the performance. "P- -1/2/3" is displayed alternating with the remaining time. The light turns off and the display disappears when the extra rinse ends.
Note:Select this function when programe 1-9 is selected.

Chapter 5 Wiring circuit



Chapter 6 Program Introduction

cycle \ program		wool	syn-thetic	cotton -ECO	cotton-Standard	pre wash	qu-ick	sport wash	MIX	Deli-cate	ri-nse	spin
wash		☑	☑	☑	☑	☑	☑	☑	☑		☑	☑
	heat	☑	☑	☑	☑	☑	☑	☑	☑		☑	☑
	wash	☑	☑	☑	☑	☑	☑	☑	☑		☑	☑
rinse	inlet	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	rinse	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	drain	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	spin	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
soft	inlet	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	rinse	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	drain	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	spin	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
spin	drain	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	spin	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	fluff	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
end		☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
power off		☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
other func--tion	strong	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	extra rinse	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	delay	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑

Chapter 7 Maintain and Self check

7-1. Caution in maintenance

1.Before the failure diagnosis,watch out for the electric shock and make sure that the power plug is disconnected and then service.

2.After the power switches on, each load will automatically load voltage 220-240V or DC.

3.Before touching the PCB, please touch the earthing wire at first to avoid that the PCB is broken by the static.

4.Exposed terminals,PC board,and rotating parts may cause injury and/or electrical shock.To reduce the risk of electrical shock,disconnect power and allow 60 seconds for capacitors to discharge before servicing.

7-2. Self check

1.How to start

Press the “speed” and “intense” button at the same time, then put the plug in to the socket, wait for about 3 seconds, the LED will display “TEST” and the model of the machine ,then you can press “start/pause” to let washing machine start test function.

2. Test item

1) when the door switch is closed for three seconds, 88:88 will be displayed.
2) when the main wash valve allows water to let in for 3 seconds, 77:77 will be displayed.
3) when the prewash valve allows water to let in for 3 seconds, 77:77 will be displayed.
4) when the softy water valve allows water to let in for 3 seconds, 77:77 will be displayed.
5) when the main wash valve, the prewash valve and also the softy water valve allow water to let in for 3 seconds at the same time, 77:77 will be displayed.
6) Heater runs for ten seconds, 66:66 will be displayed.
7) the drain pump runs for about 1 mins, 55:55 will be displayed
8) the motor runs for 10 seconds with the spin speed 400rpm, then for ten seconds with the spin speed 1000rpm, 44:44 will be displayed

7-3. Motor and noise test

Press the“speed” and “intense” button at the same time, then plug in and keep pressing the two button for 3 seconds. When "tESt" is displayed, press the "Speed" button to start the test. Then real-time speed will be display.

1.Drum run at 50rpm for 10 seconds clockwise.
2.Stop for 10 seconds
3.Drum run at 50rpm for 10 seconds anti-clockwise.
4.Drum run at 93rpm for 10 seconds anti-clockwise.
5.Drum run at 200rpm for 10 seconds anti-clockwise.
6.Drum run at Max speed for 60 seconds anti-clockwise.
7.End.

Show End when finish testing,press the “Speed” button then the testing procedure will be re-start after the motor stop running.

7-4. Model select

1.Press the extra rinse button and then put the plug in to the socket at the same time for 4 seconds, and it will enter the model-selection mode.

2.The default display shows 1060.Press the speed button tochoose 1460/1450/1260/1250/1060/1050/0960/0950/0860/0850/0760/0750/0660/0650 till the needed model.Then press the temperature key and the model can be stored. The model can not be changed after storage.

3.If you want to change the model again after storage, you can cut off the NTC and do the cycle adjustment.

4.Model PFL510W-U you should choose 1050

5.Press On/Off button gently for 2 seconds to switch off the machine as buttons are soft touch sensitive.

Chapt 8 Error Display and Troubleshooting

8-1. Troubleshooting unnormal

The following circumstances do not constitute problems.Do not contact the maintenance service until the problem has been confirmed.

Problem	Possible cause
The washing machine fails to operate	1.Poor connection to power supply 2.Power failure 3.Door is not properly closed 4.Machine has not been switched on
Washing machine can not be fille with water	1.Water tap is not turned on 2.Water pressure is less than 0.03 MPa 3.The inlet hose is kinked 4.Water supply failure 5.The program dial is not properly set 6.The door is not properly closed 7.The inlet hose filter is blocked
The machine is draining while is being filled	1.The height of the drainage hose is below 80cm(if should be within 80-100cm) 2.The drainage hose end is in water
Drainage failure	1.Drainage hose is blocked 2.Drainage hose end is exceed 100cm above the floor 3.The filter is blocked
Strong vibration during spin	1.Not all packing bolts have been removed 2.Washing machine is located on an uneven surface or is nor level 3.Machine load is over 5 kg
Operation stops before completion of a wash cycle	Water or electricity failure
Operation stops for a period of times	1.Washing machine is in anti-crease soaking cycle 2.Washing machine gives en error message
Excessive foam in the drum, which is spilled to the distribution drawer	1.The detergent is not a low-foaming type or for manual wash 2.Excessive use of detergent

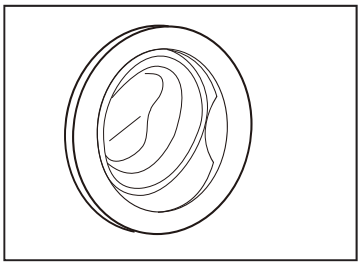
8-2. Error Display and Troubleshooting

ERR1

Error message:Door is not properly shut 20s after program is started.
presents motor thermal protector disconnect.

Troubleshooting:

Pushing the door to check whether door is properly shut or not

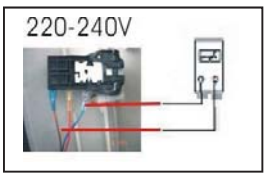


N

Shut the door properly

Y

Cut off the power and then turn on again. Check the voltage between brown wire and blue wire of door lock, is it between AC 220-240V?



N

Door lock is broken and need replacing,then make sure wire is connected properly.

Y

Check if the wire connecting door lock and PCB is loose.

Y

Connect the wire properly.

N

Check the voltage between red wire and blue wire of PCB,is it between AC 220-240V?

N

Replace PCB.

ERR2

Error message:Drainage error,water not emptied within 6 min.

Troubleshooting:

Check if water is emptied.

Y → Check if the pipe connected to the water level pressure is jammed.If it is,clean the pipe.If not,replace PCB

N

Check if drain pump acts by touching pump position.

Y → Check if drain pump or drain pipe is jammed. And open the filter and clean it.

N

Cut off the power and choose spin program to start,then check the import voltage of drain pump,is it between AC 220-240 V?

Y → Replace drain pump.

N

Cut off the power and pull out water level pressure switch wire connection.Set spin program to start.Check the export voltage to drain pump,is it between AC 220-240V?

Y → The wire between PCB and drain pump is not connected properly. Replace the wire.

N

Replace PCB.

ERR3

Error message:Temperature sensor is not properly connected or damaged (display at the end of a program).

Troubleshooting:

Cut off power and measure the resistance of NTC by multimeter, is it above 1.5 MΩ?

N → NTC exist open circuit. Replace it.

Y

Check if NTC is connected properly.

N → Connect NTC well.

Y

Check the wire between NTC and PBC,are they connected well?

N → Connect all wires well.

Y

Disconnect the white wire and black wire from PCB,and measure if the resistance between white wire and black wire of PCB,is it infinite?

Y → Replace wire.

N

Replace PCB.

ERR4

Error message:The heater may be broken.

Troubleshooting:

Cut off power,check the resistance of two pins of heater element by multimeter,is it between 28-35Ω?

N → Heater element must be broken,please replace it.

Y

Change the tem to NTC,check whether the resistance changes.

N → Replace heater.

Y

The control wire may be broken; Otherwise the PCB must be broken, please replace the broken

ERR5

Error message:

If the water infilow can not reach the washing water level within 8 minutes.

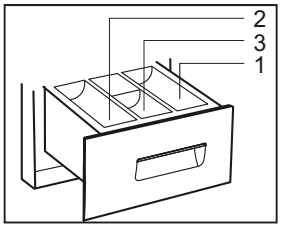
Troubleshooting:

Check if inlet valve is jammed.

Y → Clean inlet valve.

N

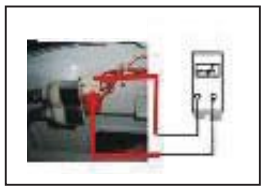
Draw out the dispenser and check if water is entering.



Y → Observe if the height of drain pipe not reach 80 cm.If water level sensor and the hose is leaking gas.

N

Turn on power,and set pre-wash mode,then start.Check the import voltage of electromagnetic valve by multimeter,is it between AC220 -240V?



Y → Electromagnetic valve must be broken,please replace it.

N

Check if export voltage from PCB to electromagnetic valve,is it between AC 220-240V?

Y → The wire connected PCB and inlet valve is not properly.Please reconnect if or replace it.

N

Replace PCB.

ERR7

Error message:Motor overheat protection or is damaged.

Troubleshooting:

Cut off power and check if motor wires ,inductance wires are connected well.

N → Reconnect well.

Y

Measure if the resistance of motor binding by multimeter,is it as followed?

Stator :1.78±8% (at 20°C)
rotor:1.90±8% (at 20°C);
Stator (full field):1.52±7% (at 20°C)
rotor:1.59±7% (at 20°C)

N → Reconnect motor.

Y

Check if circuit is open by multimeter.

Y → Repair wires.

N

Checking the computer board electricity input terminal to see if the voltage is between 220-240V,if yes,replace PCB.

ERR8

Error message:Water level exceeds protection value.

Troubleshooting:

Check if the pipe connected to the water level sensor is jammed.

Y → Clean the pipe connected to the water level sensor.

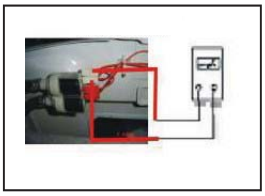
N

Without power,connect inlet pipe to inlet valve,then open the tap and observe if water is entering in dispenser.

Y → Replace inlet valve.

N

Without starting but electrifying,measure the import voltage of inlet valve,is it between AC 220-240V?



Y → Replace PCB.

8-3. Examination&Troubleshooting

8-3-1. Display nothing

Troubleshooting:

Measure the power supply, is it exists 220-240V voltage?
- N → Repair power supply.
- Y ↓

Is power switch on?

- N → Press the power switch.
- Y ↓

Press power switch and check the voltage between L and N port of the filter.Is there 220-240V AC voltage?
- N → The filter is broken, replace the filter.
- Y ↓

Cut off power and check if plugs are connected well by pulling the plug of PCB?
- N → Insert the plug well and test.
- Y ↓

Check if PCB exists 220-240V AC voltage at the import pin?
- N → Replace PCB.

8-3-2. No water inleting

Troubleshooting:

Is the tap shut off or the water pressure too low?

- Y → Open tap or wait for normal water pressure.
- N ↓

Check if water is leaking from washer connection,especially between inlet pipe and tap.To make sure of no bends.

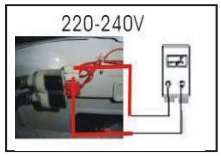
- Y → Reconnect inlet pipe.
- N ↓

Check if filter of electromagnetic valve is jammed?

Y → Clean filter.

N

Choose pre-wash program and start,check if there is 220-240V at import pin of electromagnetic valve?



Y → Replace electromagnetic valve.

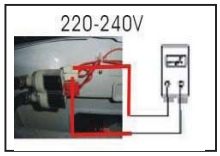
N

Is there open circuit between electromagnetic valve and PCB?

Y → Reconnect the wire.

N

Choose pre-wash program and start then check if there is 220-240V at export pin of electromagnetic valve?



Y → Replace PCB.

8-3-3. No draining

Troubleshooting:

Is the height of drain pipe too high?

Y → Adjust the height of drain pipe to 80-100cm.

N

Turn filter anticlockwise open and check if filter is jammed?

Y → Clean and tighten filter clockwise.

N

Check if hose-connecting cylinder to pump is bent or jammed?

Y → Arrange hose and clean.

N

Turn on power and choose spin program to start.Measure if import voltage of drain pump is 220-240V?

Y → Replace drain pump.

N

Cut off and check if the connection between drain pump and PCB is open?

Y → Replace the wire.

N

Turn on and select spin program to start.Measure export voltage of PCB to the drain pump,is it 220-240V? → N → Reconnect the wire.

8-3-4. Abnormal noise and vibration

Troubleshooting:

Is the pack screws dismantled? → N → Dismantle the screws.
↓ Y

Is there foreign material in the washer? → Y → Clean the washer.
↓ N

Is washer in balance? → N → Adjust adjustable feet.
↓ Y

Is belt loose or worn? → Y → Replace it.
↓ N

Remove belt and turn belt pulley by hand,and then check if there is different noise? → N → Dismantle triangle and check the bearing.If it is broken, replace it.
↓ Y

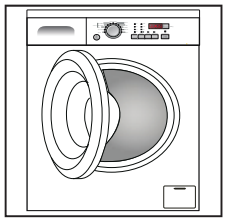
Turn on power and set spin program,then start check if there is different noise from from motor? → Y → Replace the motor.

8-3-5. Water leaking

Troubleshooting:

Check if water is leaking from the inlet pipe or the tap? → → Y → Readjust it.
↓ N

Is drain pipe broken? → Y → Replace drainpipe.
↓ N



Check if there is foreign material nipped between cushion of sight window and sight window?

Y → Remove clothes.

N

Check if all tubes and tie-in is leaking water,including the connecting of tube and valve, dispenser,tube and dispenser, outer cylinder-cushion of sight window-hose and outer cylinder, drain pump and gas valve?

Y → Reassemble or repair.

N

Is cushion of sight window broken?

Y → Replace cushion of sight.

N

Is water leaking from outer cylinder?

Y → Replace outer cylinder.

8-4. Parameter of primary electronic appliance

1.The stator resistance of motor

At normal temperature, using multimeter to detect 5 and 10 point of motor's socket, the electric resistance should be 1.67-1.85 Ω.

2.The rotor resistance of motor

At normal temperature, using multimeter to detect 8 and 9 point of motor's socket, the electric resistance should be 1.68-1.87 Ω.

3.Motor protector

At normal temperature, using multimeter to detect 6 and 7 point of motor's socket, to check whether the motor can carry electricity.

4.Electromagnetic valve

At normal temperature, using multimeter to detect both sides of the electromagnetic valve, the electric resistance should be 3.6-3.9 Ω.

5.Heater

When the washing machine is working, using multimeter to detect input terminal of the heating pipe, the normal electric resistance is about 30 Ω.

Chapter 9. Disassembly guide

Attention:

1.Pull out the plug before disassembly.

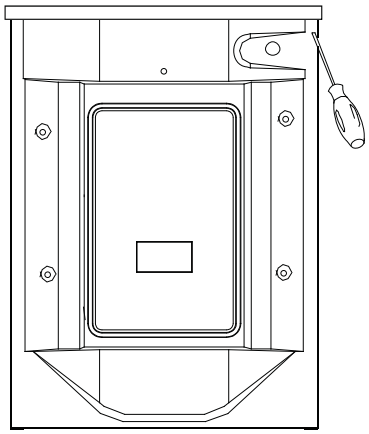
2.Keep the wire away from sharp stuff, avoid any brokage of isoluation protector therefore avoid creepage.

3.Collect screws, accecoories and keep them in difference place, avoid missing parts so that the technicians could reassemble them.

Dismantle the top cover:

1.Dismantle the 2 fixing screws at each side of the top cover.

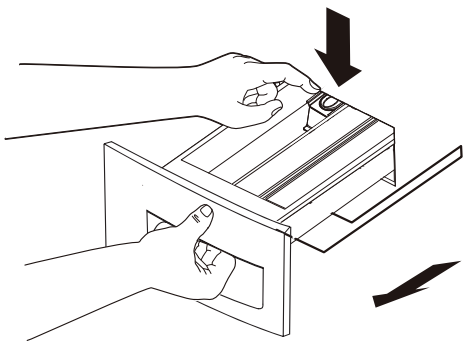
2.Pull back the top cover and then take it off.



Dismantle the soap dispensor:

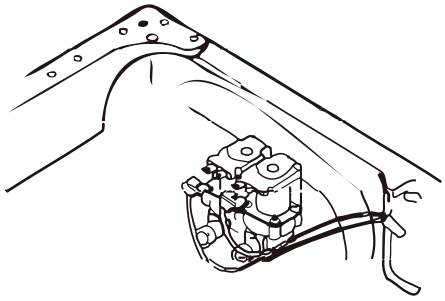
1.press the siphon cover with your forefinger.

2.Pull out the soap dispensor.



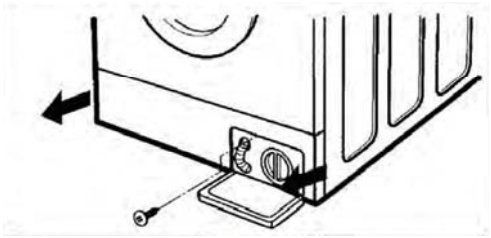
Dismantle the Electromagnetic valve

Pull out the wire connecting the valve, release the two screws and the two clips of hose. Then take off Electromagnetic valve.



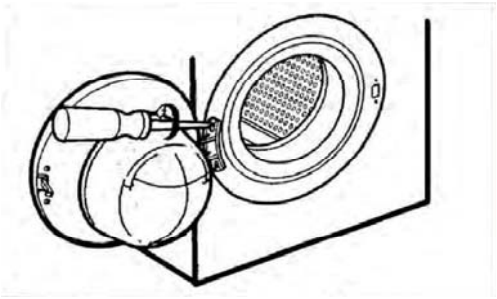
Dismantle the Lower plaque

Open the filter cover with coin, release the screw then take off the lower plaque.



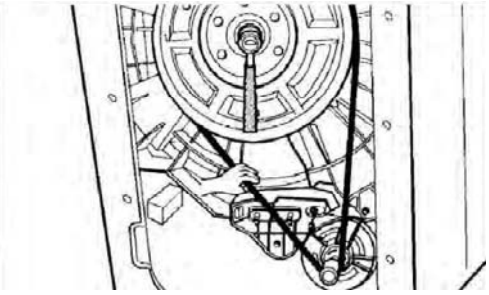
Dismantle the door

Open the door, release the screws fixing the hinge. Then take off the door.



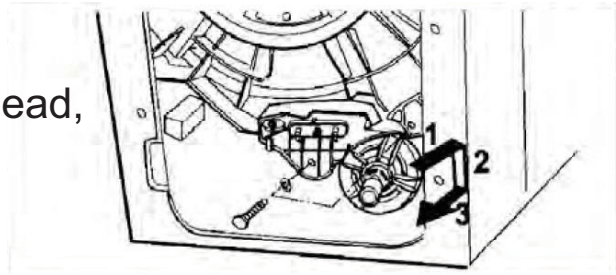
Dismantle the belt pulley

Cut off the power, remove the back cover, take off the belt. Then release the bolt of belt pulley.Then pull out the pulley.



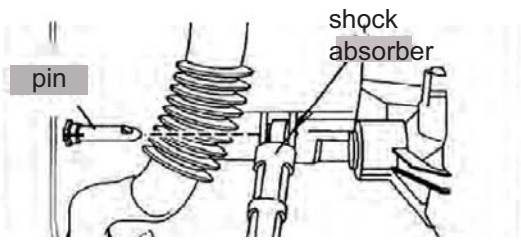
Dismantle the motor

Release the two screws on the Motor bracket. Pull the motor along the arrowhead, then take off the motor.



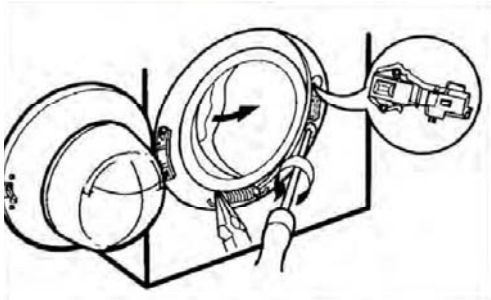
Dismantle shock absorber

Pull out the pin of shock absorber, then take off the bolt and washer of on the cabinet
The pins can not be used again.



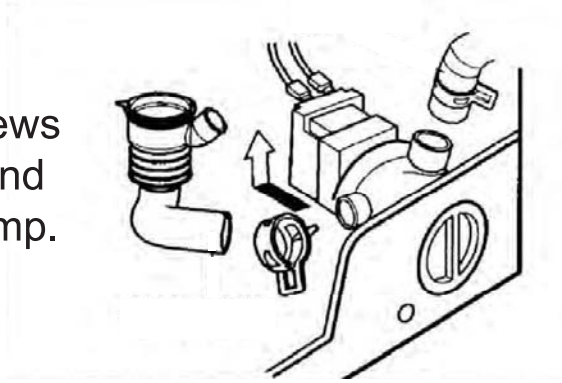
Dismantle the door lock

Take off the tightening ring of rubber cushion, release the twe screws of door lock. Pull out thewire connecting the lock, then take the lock out.



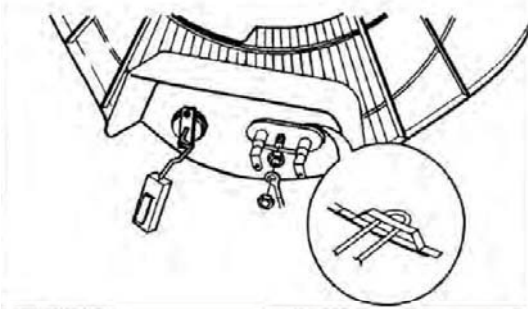
Dismantle the drain pump

Remove the lower plaque. Release the screws fixing the pump. Take off the clips of hose and pull out the wire, then take out the drain pump.



Dismantle the heater

Pull out the wire connecting the heater. Release the nut on the heater. shake the heater and take it out.



Note: If there are some thing such as coins and caddice between inner drum and outer tub, you can disassemble the heater and take them out.

Sincere Forever

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